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ABSTRACT

A study of 11 boys, aged 12 to 14 with low reading ability, was conducted to discover what kinds of errors they made and whether or not differences might exist between error patterns in silent and oral reading. Miscue analysis was used to test oral reading while cloze procedures were used to test silent reading. Errors were categorized according to their linguistic nature (graphic, semantic, or syntactic) and then were scaled in terms of their proximity to the expected response. Results of the two types of tests were similar. While such readers may appropriately exploit their ability to respond to grammatical cues, they appear to have poorly established strategies for responding to the graphic cues of words in a text. A general weakness in responding to semantic cues was also noted. (TJ)

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'A Study of Reading Errors using Goodman's Miscue Analysis and Cloze Procedure'

(paper presented to the second annual conference of the Reading Association of Ireland)

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Introduction

Error analysis is a well established approach in the study of human behaviour. Weber (1968) has reviewed its application to reading research and argues that two separate schools can be identified. One, she claims is concerned with using error analysis as a basis for constructing remedial programmes while the second is more interested in the insights offered through error analysis into basic reading strategies.

One of the most notable voices in the second school in recent years has been that of Kenneth Goodman who has developed the 'psycho-linguistic guessing game' concept of reading. This concept stresses the reader's active role in interpreting a text. Goodman (1964, 1967, 1969) argues that reading researchers should regard the reader as actively involved in interpreting a set of highly structured cues of different kinds, graphic, phonemic, syntactic and semantic. These sets of cues are made to interact by the reader on the basis of his existing knowledge of them. From this interaction results an understanding of the text's message which matches to a greater or lesser extent that of its author and those of other readers.

Differences as to an author's meaning which may arise between readers can be accounted for in terms of their differential use and interpretation of this set of cues. Some of this differential use of cues is, claims Goodman, manifested in the errors, or miscues as he prefers to term them, which readers make. In other words, whenever a reader incorrectly identifies the words of a text an error, or miscue, has been made. Since, according to Goodman, these errors are not normally casual, but rather are the outcome of the particular reader's attempt to interpret the available cues, an examination of them can provide insights into the reading

strategies being used.

A considerable body of research has developed on the basis of Goodman's thesis. One particular focus in this research has been readers' abilities to exploit their knowledge of the grammatical rules of language. Goodman (1964) has demonstrated how readers can anticipate and predict what may follow in a text on the basis of this knowledge, and also their ability to spontaneously correct errors which arise when anticipations turn out to be inaccurate.

Weber (1970) in a study of reading errors made by first grade pupils has shown the extent to which these errors respected the grammatical structure of the sentences in which they occurred. Only about 10 per cent of the sentences were rendered completely ungrammatical by these errors. The other 90 per cent were either completely grammatical (60 per cent), or grammatical up to and including the error.

On the basis of such findings it would appear that pupils, even at this early stage of formal reading instruction, are capable of responding appropriately to many, if not most, of the grammatical cues in their texts.

Following these and other studies, a general recommendation to make special use of context as a means of exploiting readers' grammatical knowledge as an aid to correct reading has been appearing in the literature on reading instruction: (e.g. Chall,1967; Open University, 1973). Biemiller(1970), however, has challenged the extent to which such a recommendation should be heeded. He argues that it is the graphic cues which present the main problem to initial readers since it is precisely such cues which are least familiar to them. Knowledge

of grammatical cues is generally, already well established through mastery of oral language and while it may be an effective tactic in certain instances to exploit this knowledge, Biemiller claims that any neglect of graphic cues ignores the principal learning task and may make for future problems. He states that 'the child's early use of contextual information does not appear to greatly facilitate progress in acquiring reading skill'. Instead, he recommends that 'teachers do a considerable proportion of early reading training in situations providing no context at all in order to compel children to use graphic information as much as possible'.

There is, therefore, some debate arising out of recent error studies as to the implications they might hold for reading instruction. The recommendations instanced above, while not mutually exclusive, do tend to suggest contrasting bases for the initial teaching of reading and perhaps for helping readers whose rate of progress is below average.

It is with a group of the latter kind that the present study is concerned. Error analysis literature has little to say about such readers. Weber refers to a number of studies, Swanson(1937), Fairbanks(1937), Bennett(1942) and Malmquist(1957). Bennett concludes that poor readers evidence a tendency to give a response associated with the stimulus before it is fully perceived, suggesting inadequately developed powers of graphic analysis. Weber(1970) and Fairbanks note a tendency for such readers to correct errors less than good readers do, perhaps an indication of poor response to the semantic cues of a text.

Sample and Procedures

The present study examines errors made by 11 boys all aged between 12 and 14 whose reading abilities ranged from 7 to 9 on the Schonell (W.R.T.) scale. Most of them had been receiving remedial reading instruction since primary school. In their secondary school remedial classes were conducted on a withdrawal basis of approximately four forty minute periods per week. The author worked with the boys in question over a term spent as a member of the remedial team. In order to assess whether differences might exist between error patterns in silent and oral reading it was decided to sample pupils' reading in both modes.

Oral reading was sampled in the traditional way. Pupils were allowed to glance briefly over the texts before reading them aloud to a tape recorder. Copies of these texts were later annotated to reflect any errors made. Cloze procedure was used to sample silent reading. Following a short deletion-free introduction of 2 to 3 sentences texts contained deletions at every tenth word. It is obvious that cloze has severe limitations as a means of sampling errors since it is only possible to obtain such evidence at the choice points predetermined by the deletions. However, any other means of sampling errors in silent reading are likely to be even more indirect.

The texts chosen for both kinds of reading were taken from the 'Reading Routes' laboratory (Leedham,1973) and were at reading levels between 7.5 and 9.

Results and Discussion

Errors in oral reading were defined as any mispronunciation, omission, insertion or substitution of words. Any obvious disregard of punctuation was also noted. Repetitions, however, while noted were not counted as errors, although some studies would so classify them. A record was made of all errors spontaneously corrected by the pupils. In cloze readings errors were defined as any response differing in any way from the deleted word. A total of 284 errors were noted in the oral readings and 495 in the cloze. Goodman's(1969) 'Taxonomy of Cues and Miscues in Reading' was used as a guide to the analysis. Within this taxonomy Goodman first categorises errors according to their linguistic nature, i.e. graphic, semantic, syntactic etc., and secondly scales them in terms of their proximity to the expected response. The present study confines the linguistic analysis to only the more general categories and avoids the very discrete sub-classifications offered by Goodman.

The scaling system proposed is a nine or ten point one depending on the kind of cue. For example, from the data collected, 'says' was substituted for 'said'. This error was ranked at 4 on the graphic scale since it contained two similar letters to its 'expected response' out of a possible four. At the syntactic level it was ranked at 6 since the only change involved was one of tense, while at the semantic level it was also ranked 6 there being, apparently, only a slight change of meaning as a result.

Using Goodman's taxonomy and its scaling principle the results displayed in Tables I and II were obtained. These tables indicate the number of errors at graphic, syntactic and semantic levels according to their degree of proximity to the expected response. Mean values for the errors are also indicated.

In both sets of data one is immediately struck by the high number of errors concentrated round the extremes of the scale. At each of the three levels in both the oral and the cloze readings, errors tended to be either quite proximate or not very proximate to their expected response.

When examined more closely, the overall picture presents a number of interesting and similar patterns across both sets of data. These patterns are most readily seen in the two bar graphs. There the errors are shown as divided into three groups at each level, those least proximate to their expected response (scale points 0,1,2), those at the centre of the scale (points 3,4,5) and those most proximate to their expected response (points 6,7,8,9). In the oral reading results a similar pattern of error distribution across the scale can be seen for both the graphic and the syntactic levels, ie. a high number of errors at both extremes, fewer at the centre, but with the highest number appearing in the most proximate group. This pattern is, however, virtually reversed at the semantic level where the highest number of errors were judged to be of very low or zero proximity to their expected responses. The cloze reading results present a very similar distribution pattern at both the syntactic and semantic level.

A first conclusion therefore might be that both sets of errors would appear to be having similar effects in the sense that they suggest readings tending to be of the same degree of proximity to the original. Apart from anything else, this could be taken as confirming the claim that oral and silent reading are parallel processes.

More pertinent for assessing pedagogic implications is an examination of the results at the syntactic level and a comparison between what seems to be happening at that level with what is revealed about the other two. The syntactic level is chosen as a key level for discussion because, as indicated above, it has been the level to have received a great deal of attention in previous studies.

Results at the syntactic level suggest that about 60 per cent of the errors are highly proximate to their expected response. However, since the effect of the remaining 40 per cent would not necessarily be the creation of grammatically unacceptable sentences, it was decided to examine all sentences containing errors to see to what extent they might be still grammatical. Grammatically correct sentences would indicate that readers were responding appropriately to grammatical cues.

Weber's (1970) approach was followed. She proposes 3 possible kinds of sentence consequent to an error (i) sentences grammatical to the end, (ii) sentences grammatical up to and including the error, (iii) sentences completely ungrammatical. Table III summarizes the findings of this analysis and offers comparison with Weber's results for her low ability readers. In this latter respect similar results would appear to exist across both studies. Approximately 60 per cent of errors do not affect the grammaticality of sentences. A further 28 per cent in the case of oral reading and 17 per cent in cloze lead to semi-grammatical sentences. In Weber's study this second figure is somewhat higher at almost 37 per cent. Overall, however, the point can be stressed that in more than three quarters of the errors readers were appropriately responding to grammatical cues, to a greater or lesser extent. If this conclusion is correct it would indicate that, in the case of such low ability readers as those involved in this study, response strategies to grammatical cues are good, just as they were shown to be in the case of low ability readers at first grade in Weber's study.

If grammatical cues are being appropriately responded to for the most part can the same be said of cues at each of the other two levels?

Consideration of errors at the graphic level suggests a similar, but more even distribution, across the scale (Table I). At this level also the most proximate group is the largest group of the three, but at 44 per cent it contains less than half of the errors. It would appear, therefore, that a higher degree of miscueing was taking place at this level. However, following the positive approach adopted in analysing the errors from a syntactic perspective an examination was made to determine in what ways errors retained similarity to their expected responses in graphic terms.

Results (Table IV) indicate that 76 per cent of errors retained some graphic element of the expected response while the rest bore no resemblance at all to it. Is this evidence enough to suggest poor word attack skills in these readers? A closer examination of the 76 per cent retaining some similarity may help answer this question. This figure consists of the 9 per cent which reflect miscueing on the initial part of a word, e.g. 'another' substituted for 'other', 'there' for 'where' and 'dig' for 'big' etc. Twenty-one per cent contain a miscue on the medial section, or the medial and final sections, e.g. 'last' for 'least', 'the' for 'this' etc.. Forty six per cent reflect miscues on the final letters only, e.g. 'with' for 'witch', 'pleased' for 'pleasant' and a very large number where a plural form is substituted for a singular, and vice versa.

No clear evidence emerges from this data as to what kinds of graphemes, or graphemic combinations, might be causing particular difficulty. Indeed many of the words which are miscued are correctly responded to in other sentences thus making it even more difficult to detect any general pattern of word attack problems. What does seem to emerge, however, is some weakness in responding to graphic cues in context, what Bennett (1942) summarizes as a tendency to give a response associated with the stimulus before it is fully perceived. This is a tendency which may be influenced by the readers more developed response strategies to grammatical cues. Of the 23 per cent of errors bearing no graphic resemblance to their expected response some 60 per cent were grammatically acceptable substitutes, thus suggesting that grammatically acceptable miscues may distract from graphic cues. There is further evidence of this in the spontaneously corrected errors. Only 2 per cent of grammatically acceptable miscues were self-corrected in contrast to 17 per cent in the case of those creating ungrammatical sentences. These readers, therefore, would appear to be quite satisfied if they produce grammatically acceptable sentences whatever about graphic and semantic acceptability.

At the semantic level, errors, judged in terms of their dictionary proximity to the expected response, tended to fall more into the lower of the three groups. It is a very pronounced tendency in both sets of data and although the final effect was not tested through any kind of comprehension test there would appear to be a general weakness to respond to meaning. The low level of self-correction

already referred to could be further evidence of this.

Conclusions

Results of this study of reading errors made by eleven boys of poor reading ability at secondary level indicate a number of notable tendencies.

It is suggested that while such readers may appropriately exploit their ability to respond to grammatical cues they would appear to have poorly established strategies for responding to the graphic cues of words in a text. In addition a general weakness in responding to semantic cues was noted.

Further research is required before precise implications can be drawn from the study. A general implication suggested is that caution can be advised in encouraging pupils to use contextual cues where the ability to respond to graphic cues seems to be weak. This is in line with Biemiller's recommendations for the initial stages of reading instruction. Exercises which focus attention particularly on the post-initial parts of words would appear to be especially called for. These should not deal only with the words as isolated elements, but should contextualise them in a variety of ways and do so to provide opportunities for reading them in a variety of texts.

TABLE I Oral Reading Errors - Proximity Values (n. 284)

Degrees of proximity	0	1	2	3	4	5	6	7	8	9	Mean
Graphic	73	8	10	27	34	6	50	20	56	0	4.1
Syntacic	116	1	0	4	5	4	38	11	105		4.2
Semantic	159	0	1	1	15	0	26	22	48		3.0

TABLE II Silent (Cloze) Reading Errors - Proximity Values (n. 495)

Degrees of proximity	0	1	2	3	4	5	6	7	8	9	Mean
Syntactic	169	15	5	0	4	1	33	47	221		4.7
Semantic	210	0	112	0	36	0	73	15	44	4	2.6

TABLE III Grammatical effect of errors on sentences

	grammatical to end	grammatical to error, ungramm. to end	ungrammatical
Farren (oral)	60(172)*	28(79)	12(34)
Farren (silent)	59(292)	17.2(85)	22.2(110)
Weber (oral)	55.9(52)	36.6(34)	7.6(7)

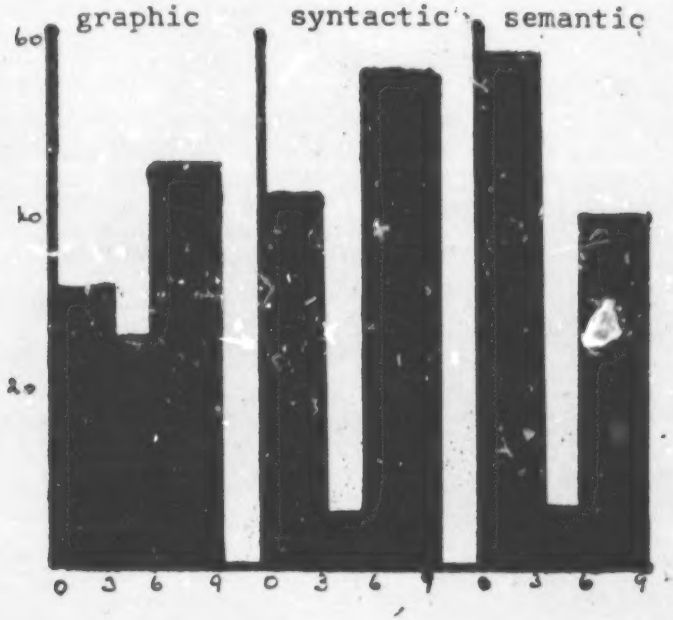
TABLE IV Source of Error in Graphemic Terms (oral readings only)

Initial Grapheme	Medical Grapheme	Final Grapheme	No Resemblance
9(25)	25(59)*	46(132)	23(68)

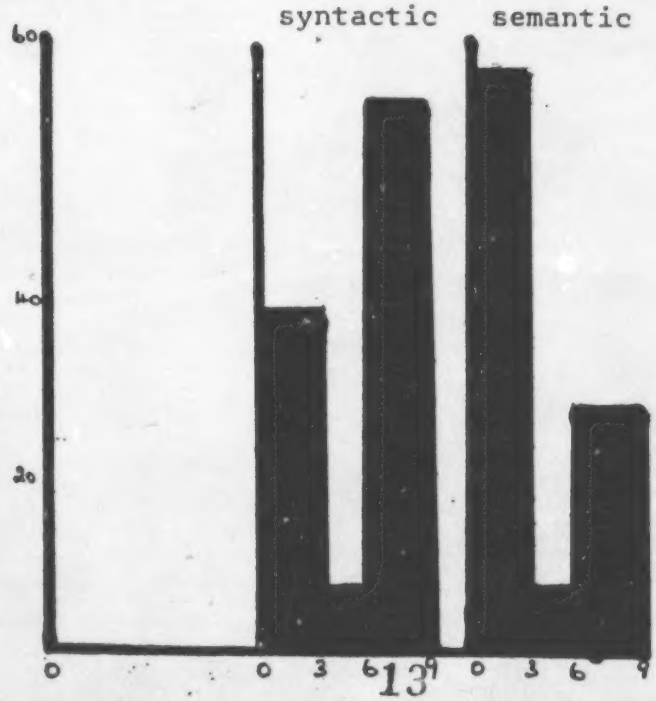
*scores are presented in percentages, brackets contain raw scores.

. Percentage distribution of errors according to proximity values .

I - Oral Readings



II - Silent(cloze) Readings



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